

Great Plains and Midwest Climate Outlook August 18, 2016

Mark Svoboda, Climatologist
Monitoring Program Area Leader

National Drought Mitigation Center

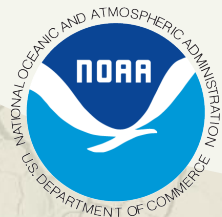
Drought Risk Management Research Center
University of Nebraska-Lincoln

msvoboda2@unl.edu

402-472-8238



Photo courtesy: Jim Noel, NWS



General Information

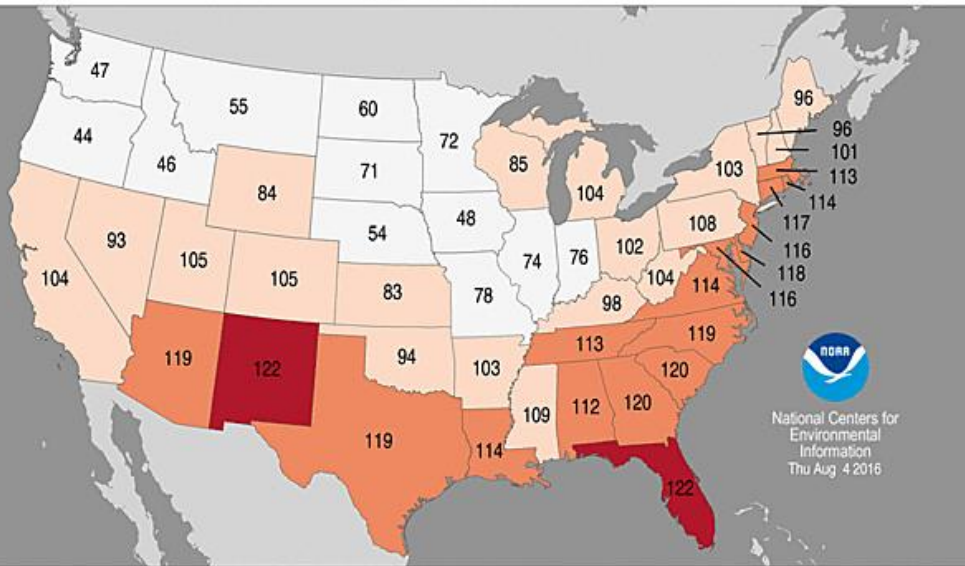
- **Providing climate services to the Central Region**
 - Collaborative activity between the usual suspects:
 - Dennis Todey (South Dakota State Climatologist), Mark Svoboda (NDMC), Doug Kluck (NOAA), State Climate Offices, Midwest Regional Climate Center, High Plains Regional Climate Center, NOAA's Climate Prediction Center and River Forecast Centers, US Army Corps of Engineers (USACE) and National Drought Mitigation Center
- **Next Climate/Drought Outlook Webinar**
 - **September 15, 2016**
- **Access to Future Climate Webinars and Information**
 - <http://www.drought.gov/drought/content/regional-programs/regional-drought-webinars>
- **Past recorded presentations and slides can be found here:**
 - <http://mrcc.isws.illinois.edu/webinars.htm>
 - <http://www.hprcc.unl.edu/webinars.php>
- **There will be time for questions at the end**

Agenda

- **Climate Recap + Current Conditions**
- **Regional Climate Updates**
- **Outlooks**
- **Q&A Discussion**

Statewide Average Temperature Ranks

July 2016
Period: 1895–2016

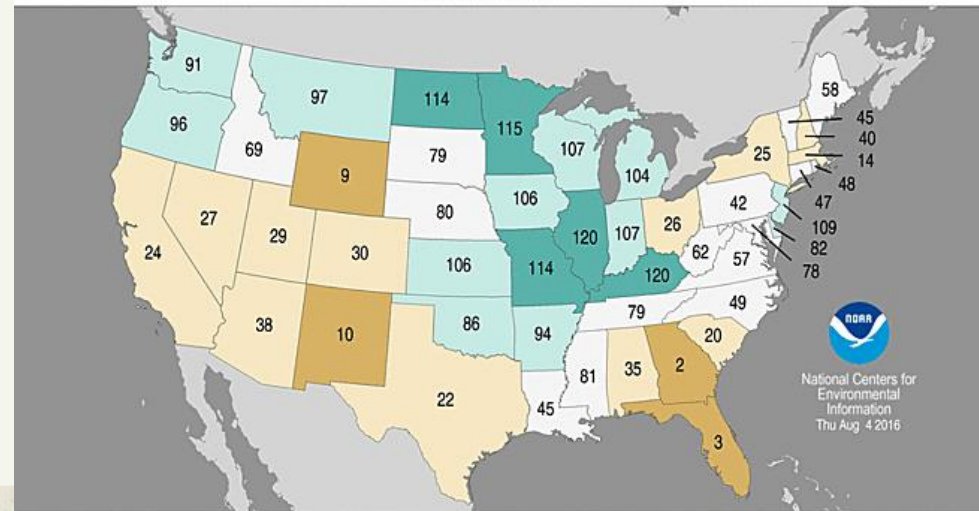


July 2015 Climate

<https://www.ncdc.noaa.gov/sotc/>

Statewide Precipitation Ranks

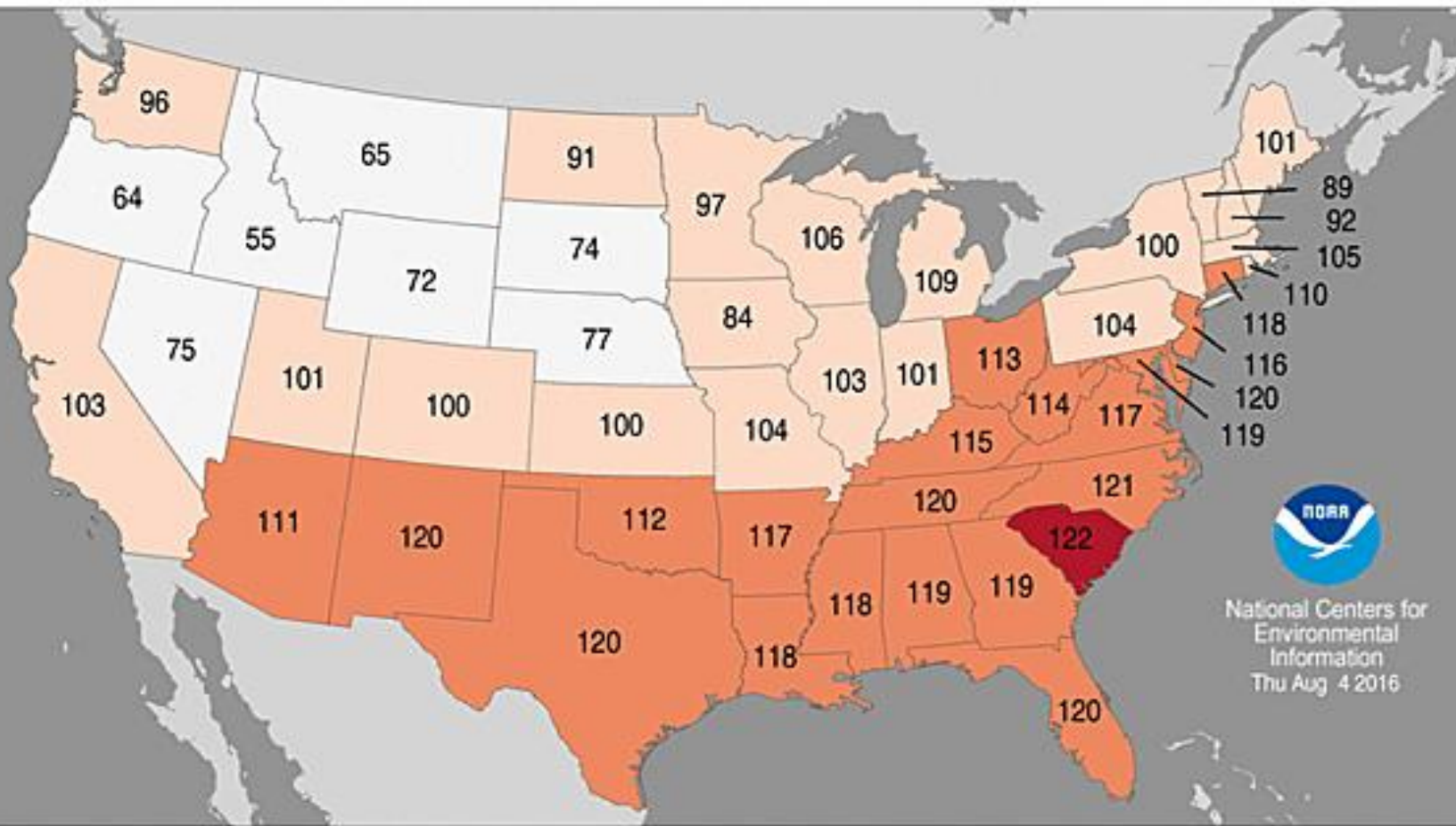
July 2016
Period: 1895–2016



Statewide Minimum Temperature Ranks

July 2016

Period: 1895-2016



National Centers for Environmental Information
Thu Aug 4 2016

Record Coldest
(1)

Much Below Average

Below Average

Near Average

Above Average

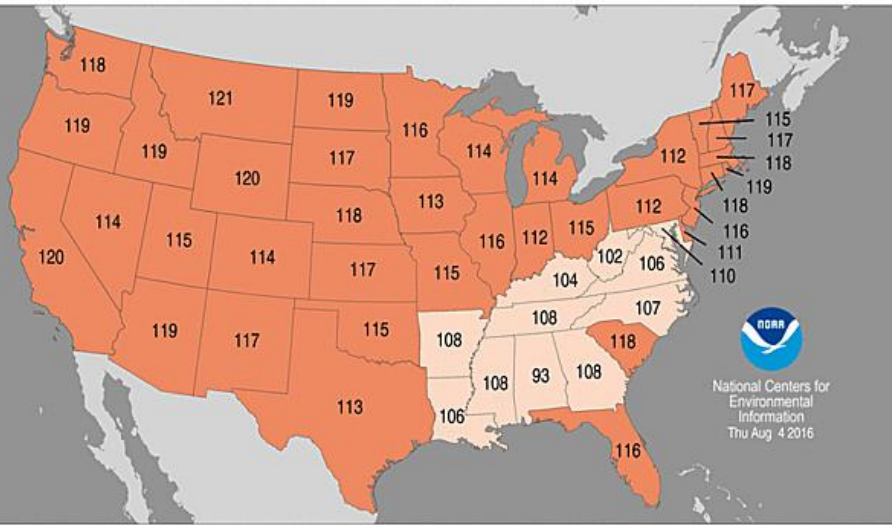
Much Above Average

Record Warmest
(122)



Statewide Average Temperature Ranks January–July 2016

Period: 1895–2016

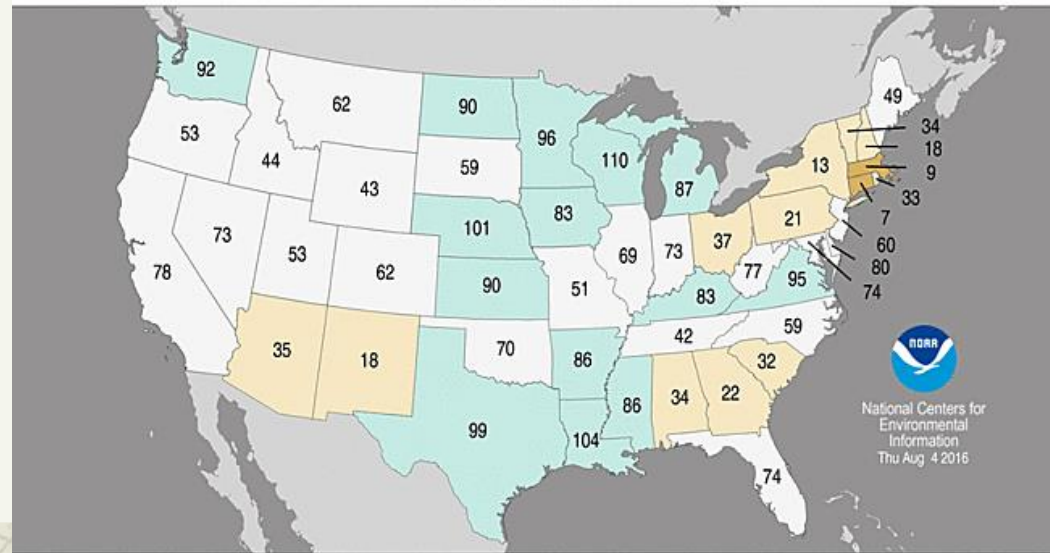


YTD 2015 Climate

<https://www.ncdc.noaa.gov/sotc/>

Statewide Precipitation Ranks January–July 2016

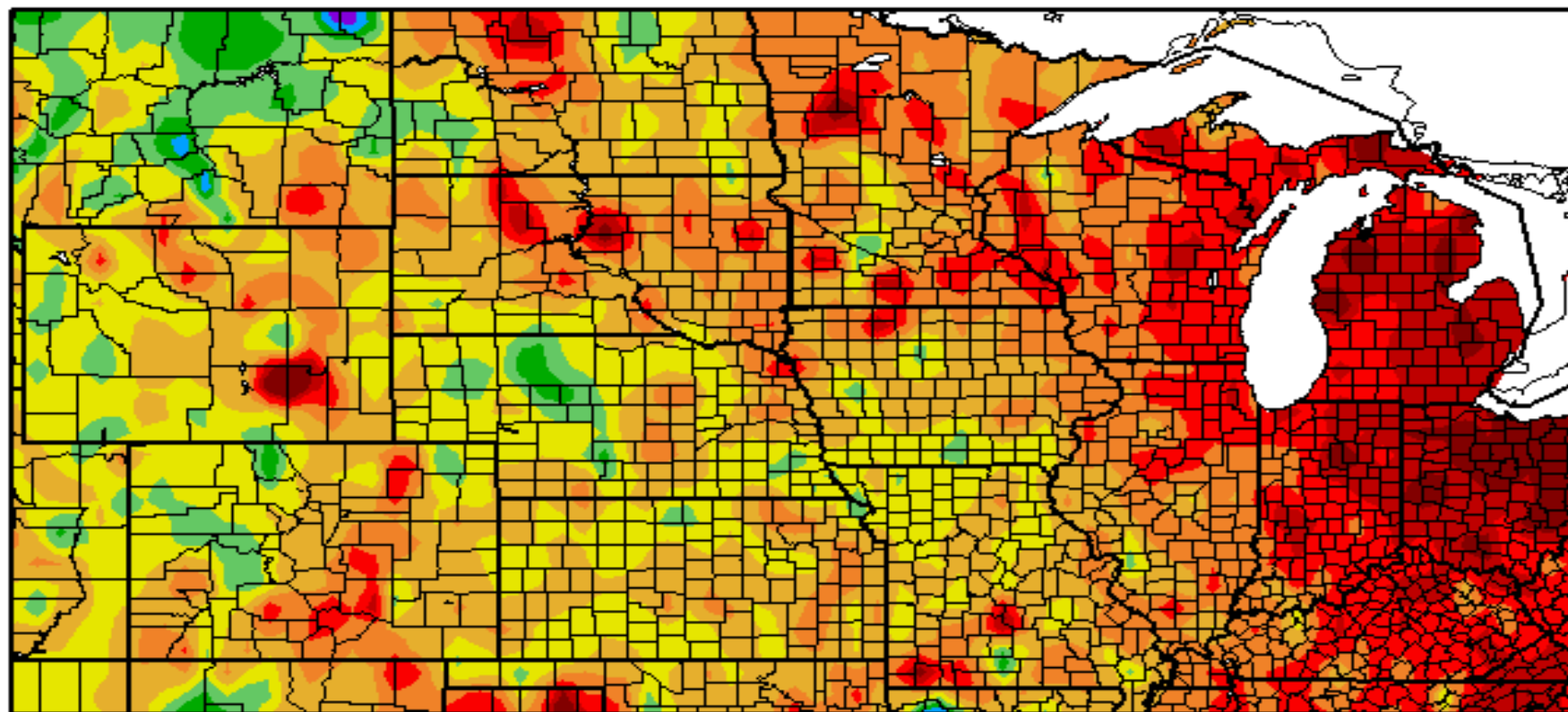
Period: 1895–2016



30-Day Temperature Departure

Departure from Normal Temperature (F)

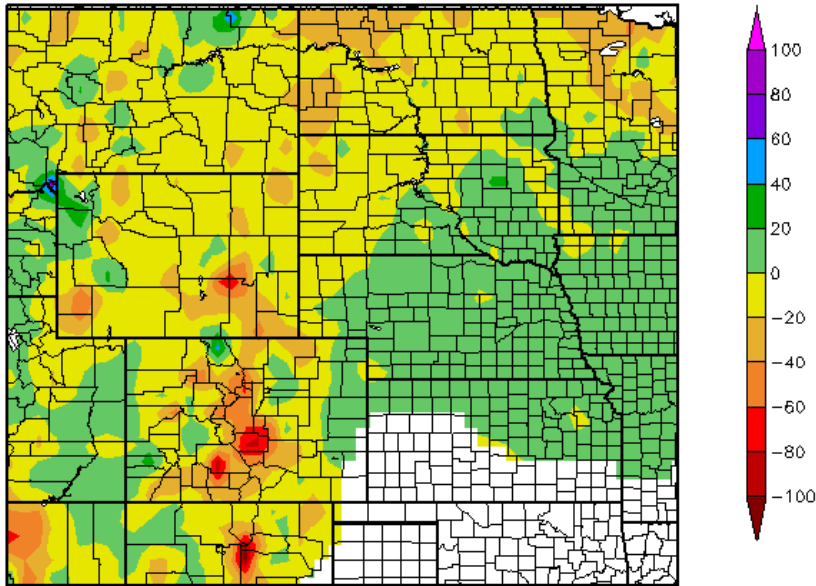
7/19/2016 – 8/17/2016



<http://www.hprcc.unl.edu/maps/current/>

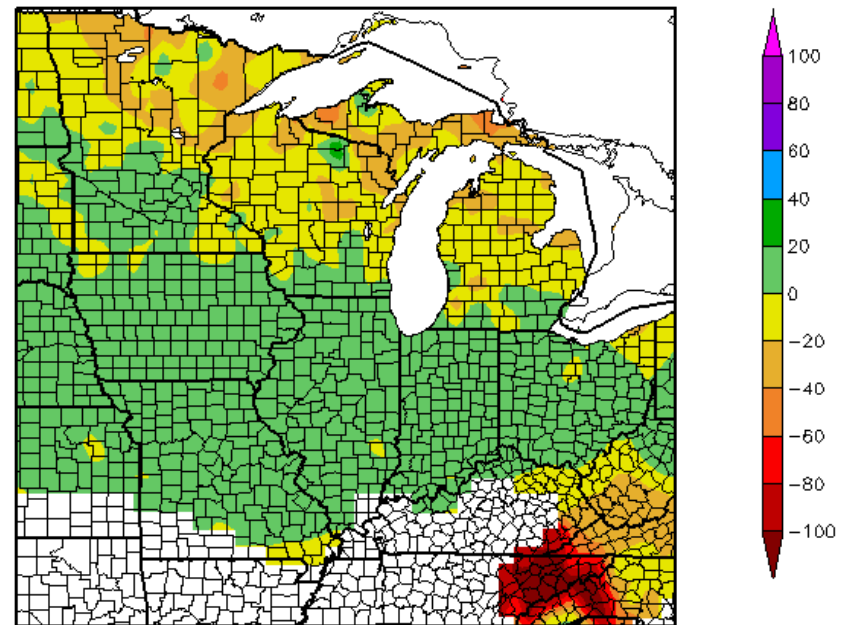


Departure from Normal HDD (base 65)
7/1/2016 - 7/31/2016



Heating Degree Day Departures

Departure from Normal HDD (base 65)
7/1/2016 - 7/31/2016

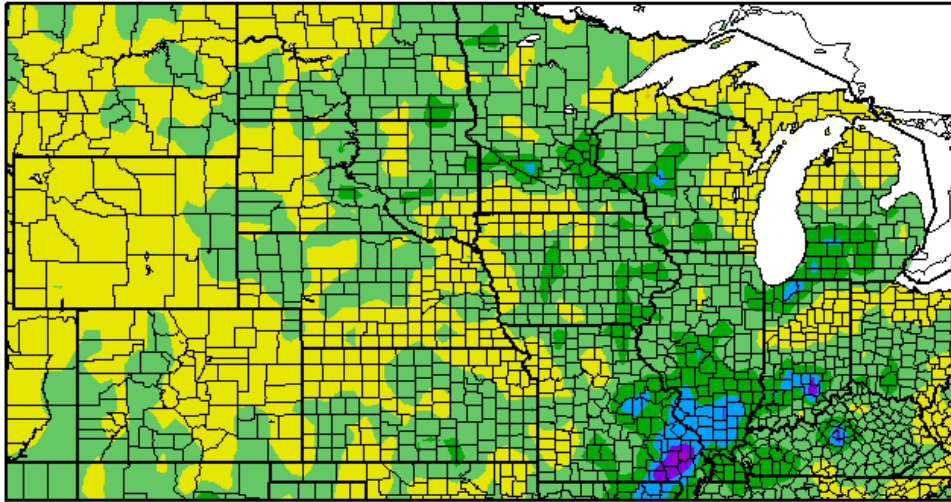


Generated 8/11/2016 at HPRCC using provisional data.

Regional Clim

Departure from Normal Precipitation (in)

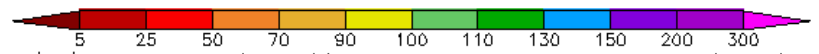
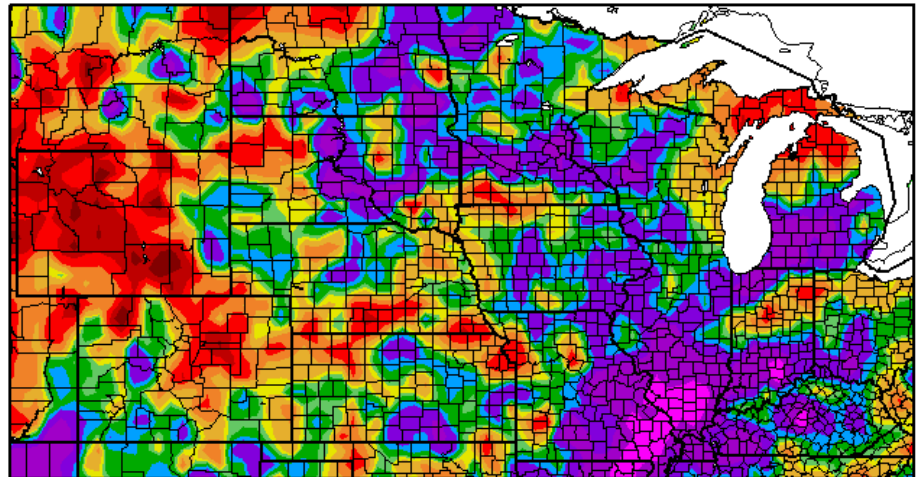
7/19/2016 - 8/17/2016



30-Day Precipitation

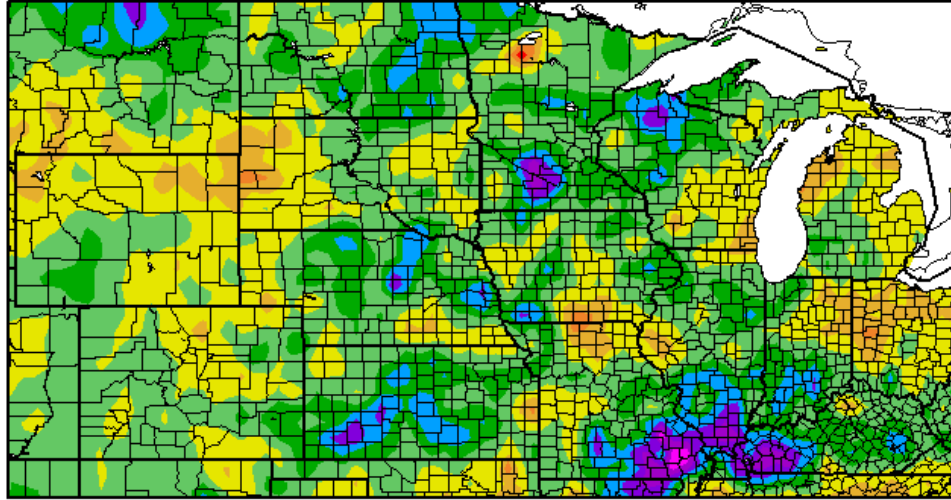
Percent of Normal Precipitation (%)

7/19/2016 - 8/17/2016



Departure from Normal Precipitation (in)

4/1/2016 – 8/17/2016



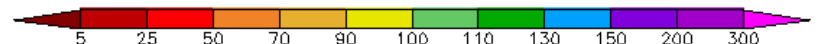
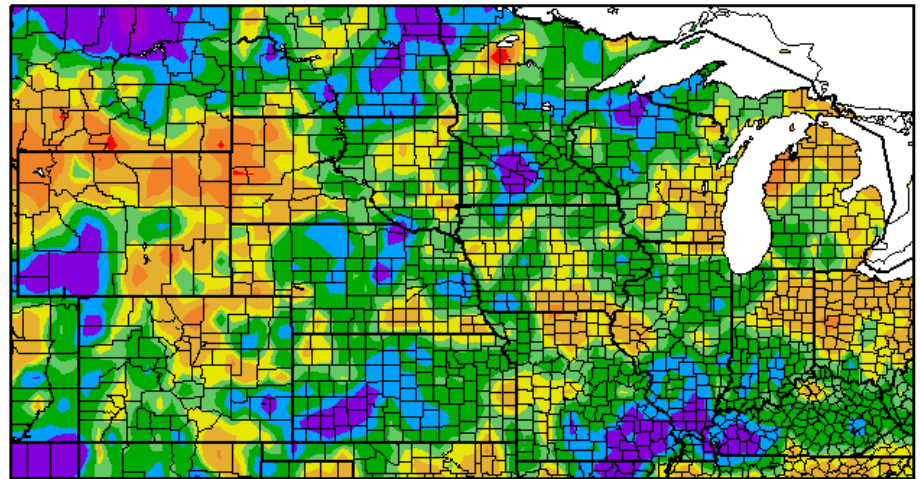
Generated 8/18/2016 at HPRCC using provisional data.

Regional Climate Centers

Growing Season Precipitation

Percent of Normal Precipitation (%)

4/1/2016 – 8/17/2016

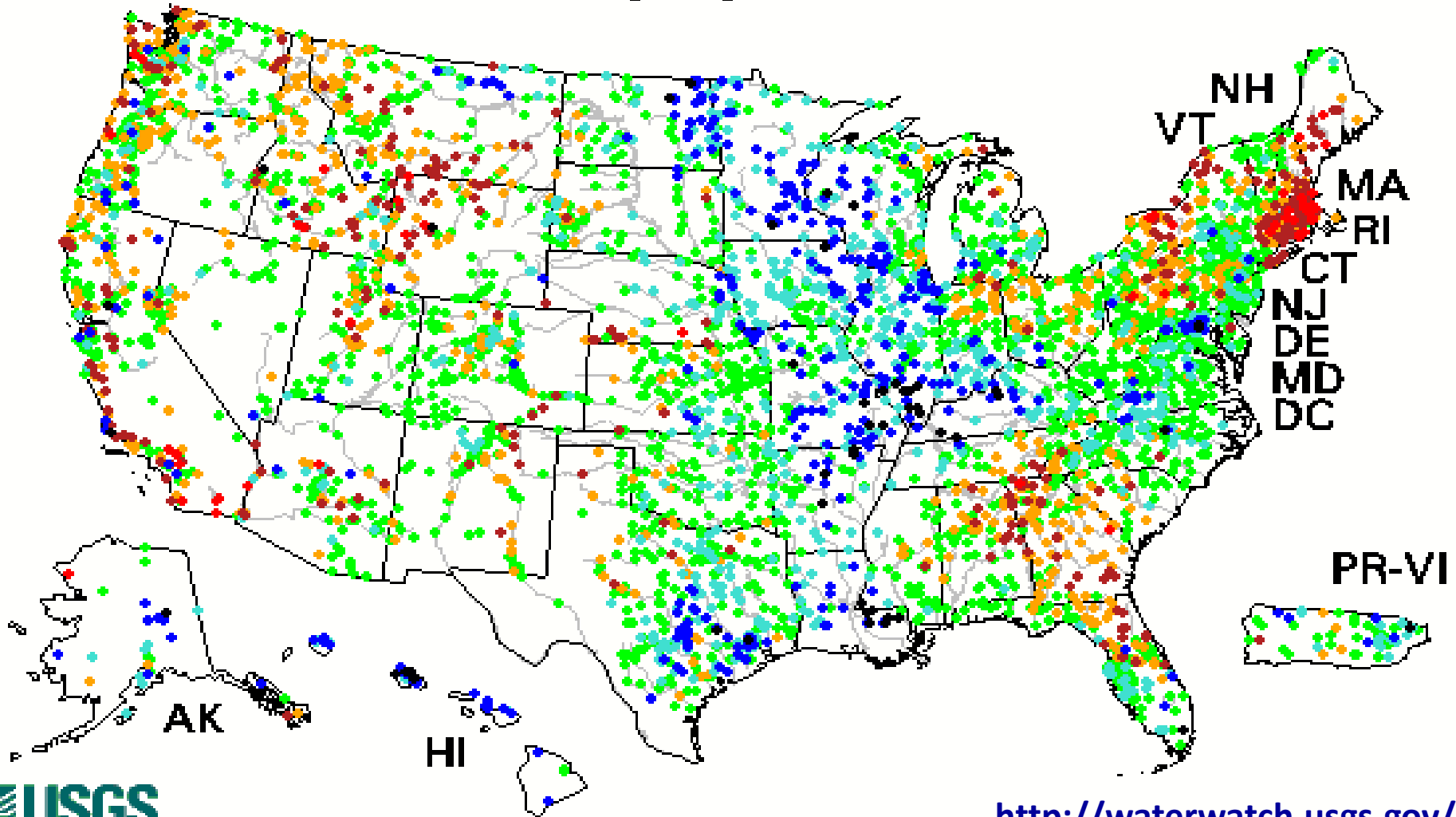


Generated 8/18/2016 at HPRCC using provisional data.

Regional Climate Centers

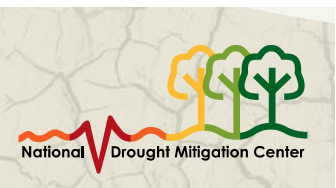
28-Day Average Streamflow

Wednesday, August 17, 2016



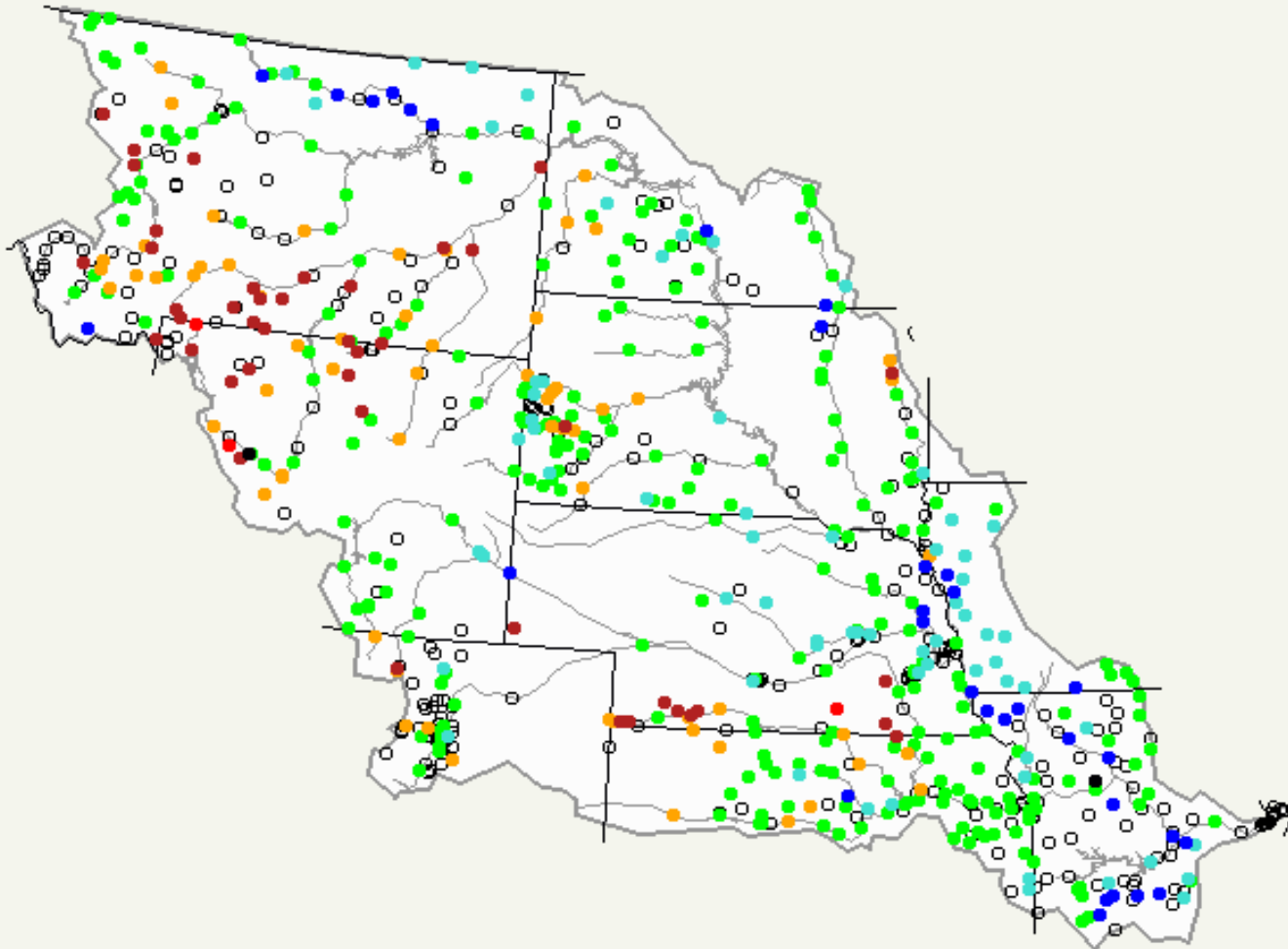
<http://waterwatch.usgs.gov/>

Explanation - Percentile classes						
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	



28-Day Average Streamflow

Wednesday, August 17, 2016



USGS

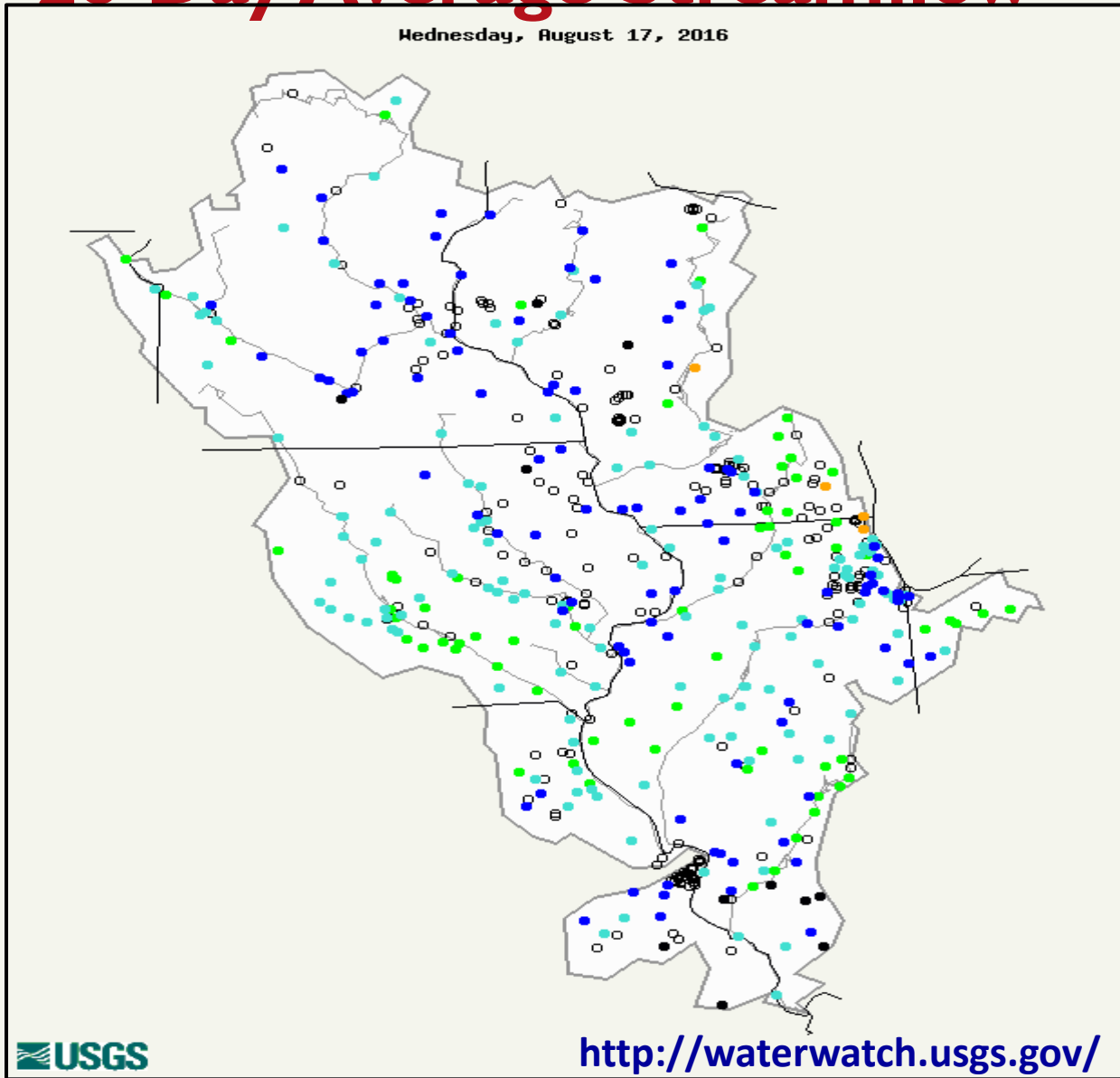
<http://waterwatch.usgs.gov>

Explanation - Percentile classes

	●	●	●	●	●	●
Low	<10	10-24	25-75	76-90	>90	High
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28-Day Average Streamflow

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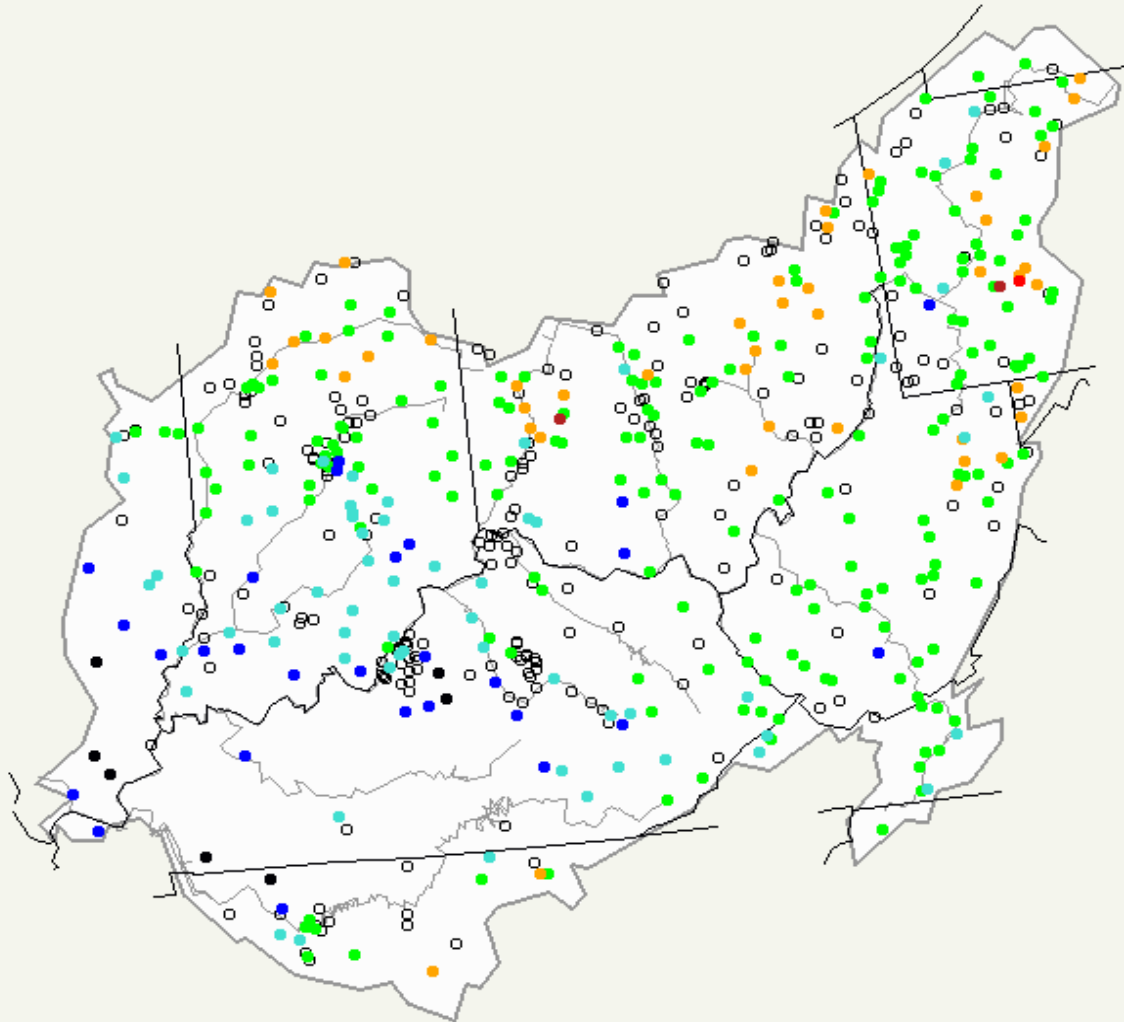
USGS

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USGS

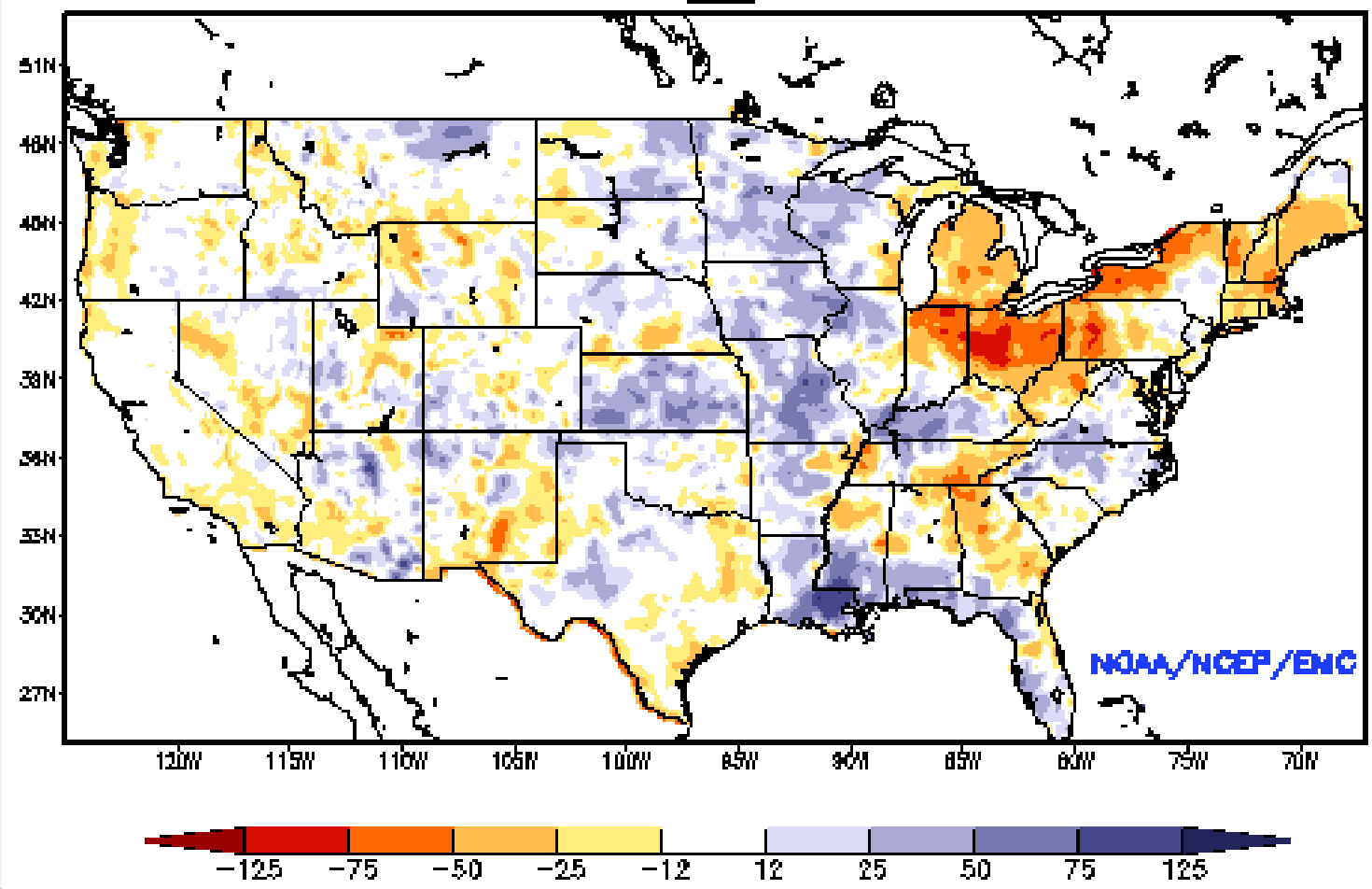
<http://waterwatch.usgs.gov/>

Explanation - Percentile classes

	●	●	●	●	●	●
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Soil Moisture Anomaly

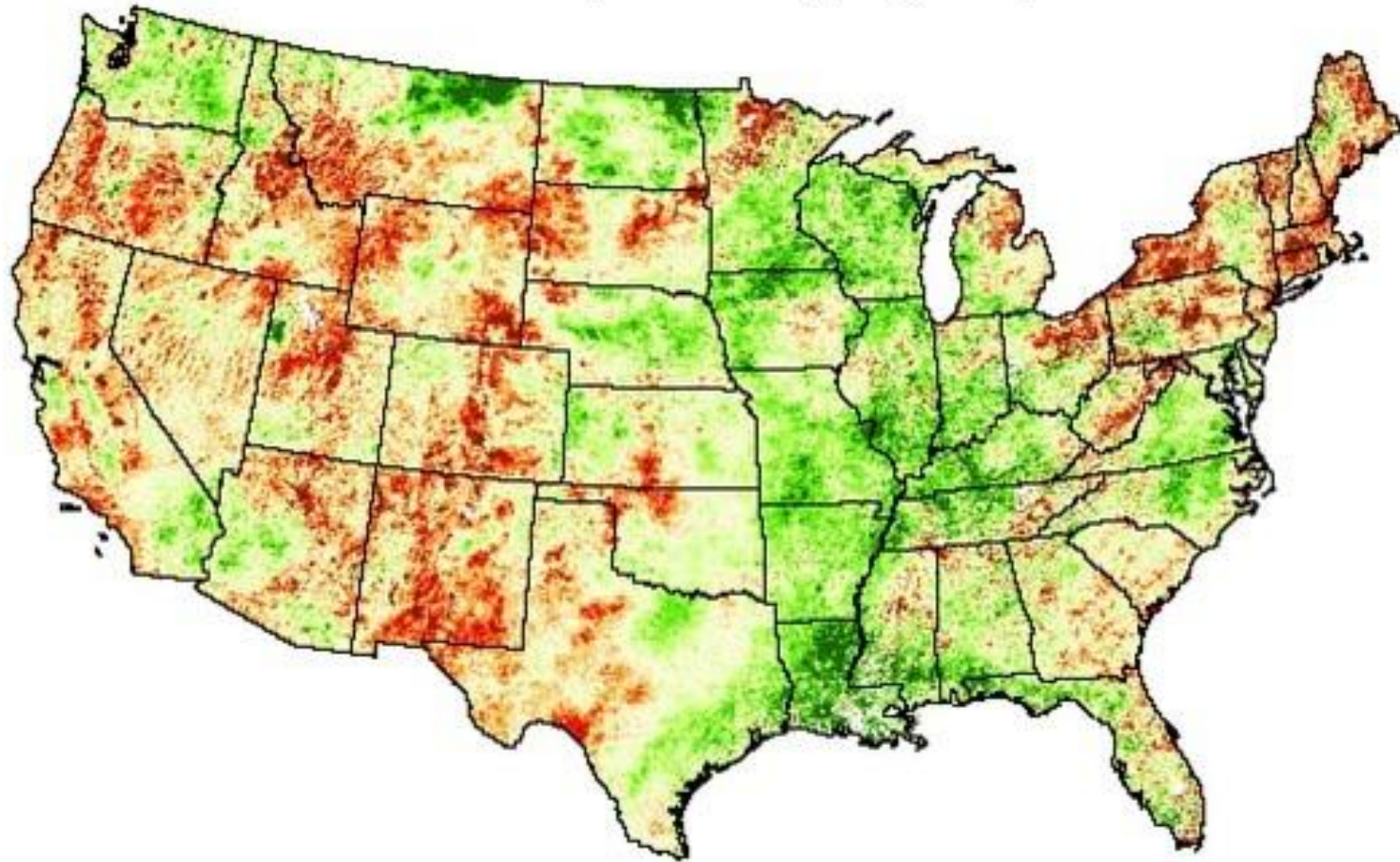
Ensemble-Mean - Current Top 1M Soil Moisture Anomaly (mm)
NCEP NLDAS Products Valid: AUG 13, 2018



<http://www.emc.ncep.noaa.gov/mmb/nldas/drought/>

Evaporative Stress Index 4km

1 month composite ending August 17, 2016

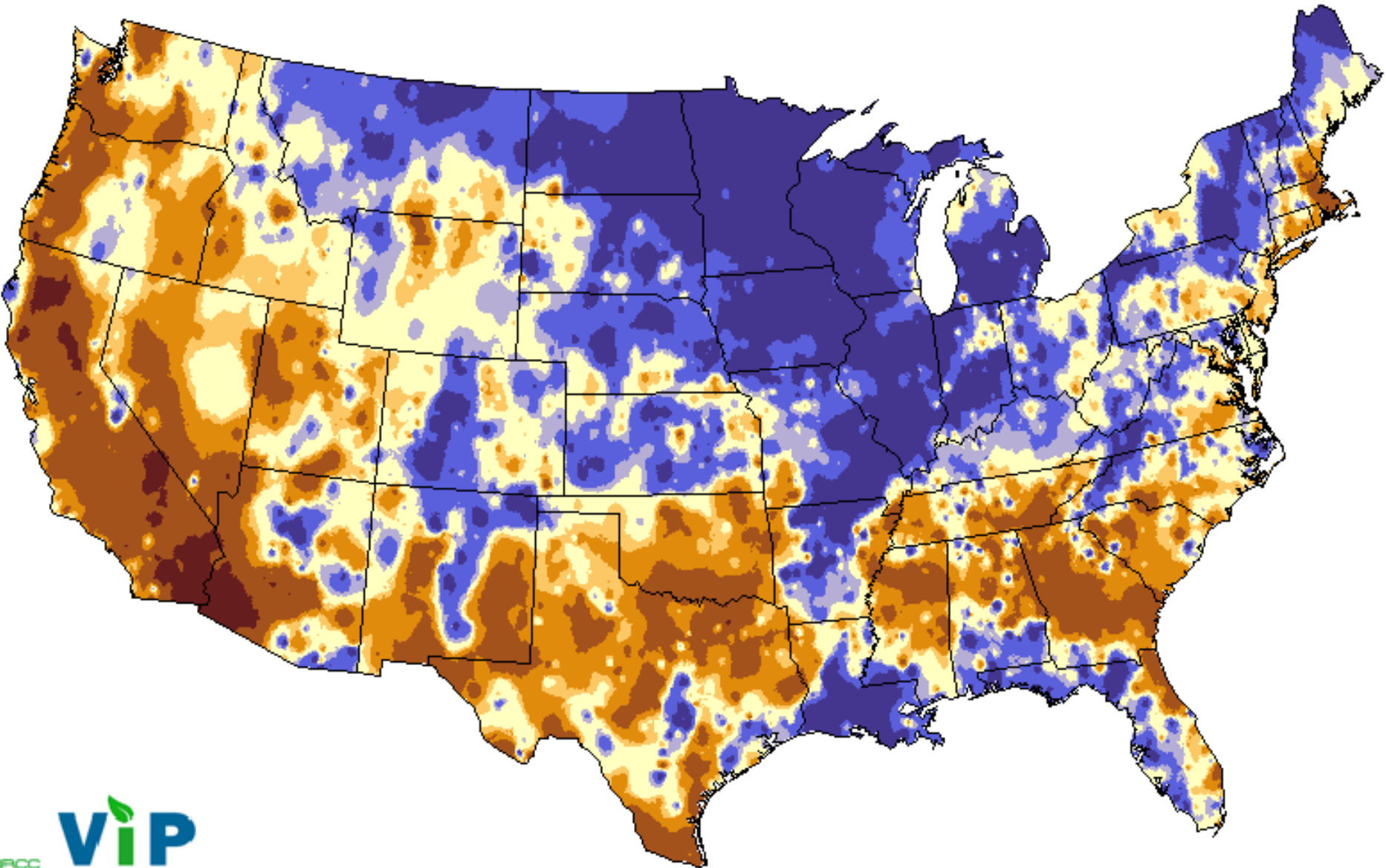
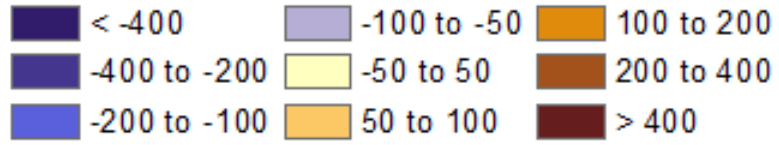


Standardized ET/PET anomalies



Keetch-Byram Drought Index, Departure from Normal

Values calculated for 8/16/2016

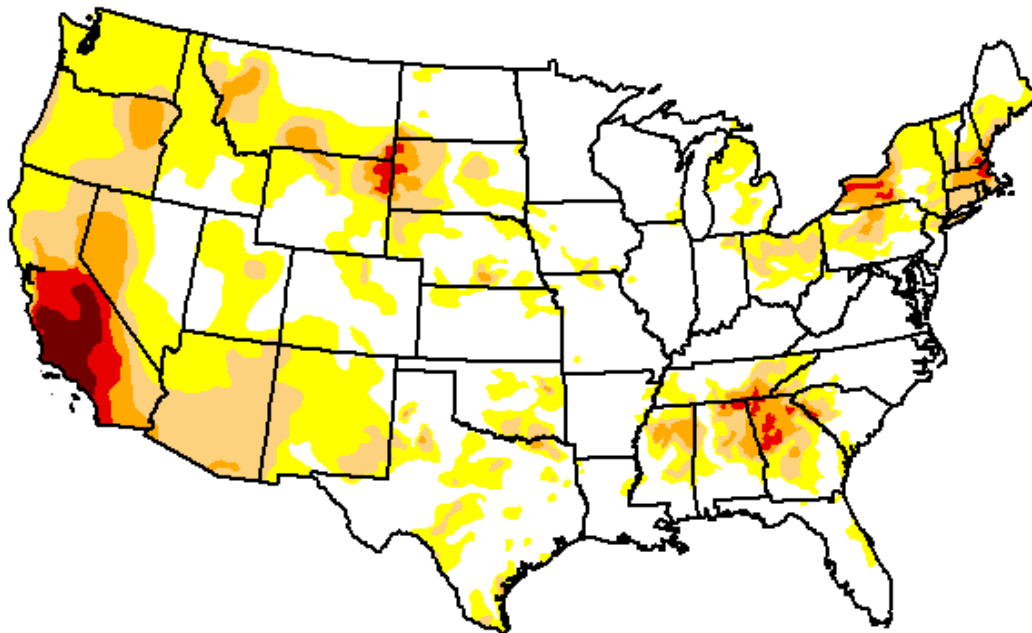


U.S. Drought Monitor CONUS

August 16, 2016
(Released Thursday, Aug. 18, 2016)
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	52.72	47.28	19.86	7.71	2.91	1.11
Last Week 8/9/2016	48.33	51.67	21.79	8.20	2.82	1.11
3 Months Ago 5/17/2016	71.03	28.97	13.87	4.79	2.46	1.11
Start of Calendar Year 12/29/2015	66.99	33.01	18.74	11.56	6.28	2.70
Start of Water Year 9/29/2015	44.91	55.09	31.36	20.09	11.45	3.00
One Year Ago 8/18/2015	54.76	45.24	29.40	18.21	9.41	3.00



Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author(s):

David Miskus
NOAA/NWS/NCEP/CPC

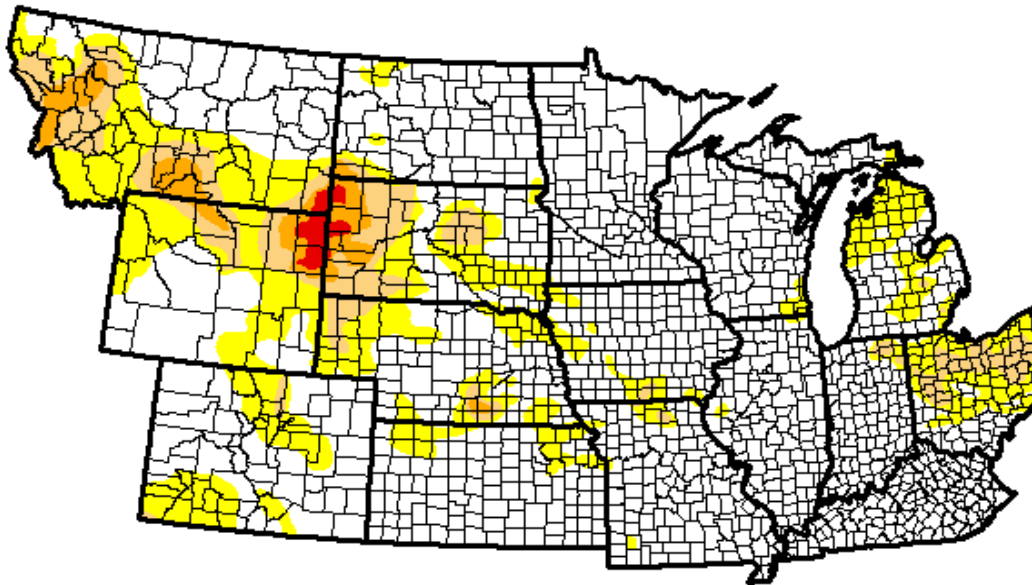


U.S. Drought Monitor NWS Central Region

August 16, 2016
(Released Thursday, Aug. 18, 2016)
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	70.87	29.13	9.59	3.01	0.59	0.00
Last Week 8/9/2016	66.93	33.07	12.02	3.62	0.71	0.00
3 Months Ago 5/17/2016	91.59	8.41	1.44	0.09	0.00	0.00
Start of Calendar Year 12/29/2015	78.96	21.04	5.65	2.67	0.45	0.00
Start of Water Year 9/29/2015	71.52	28.48	5.67	3.66	2.15	0.00
One Year Ago 8/18/2015	85.19	14.81	5.14	2.99	1.83	0.00



Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

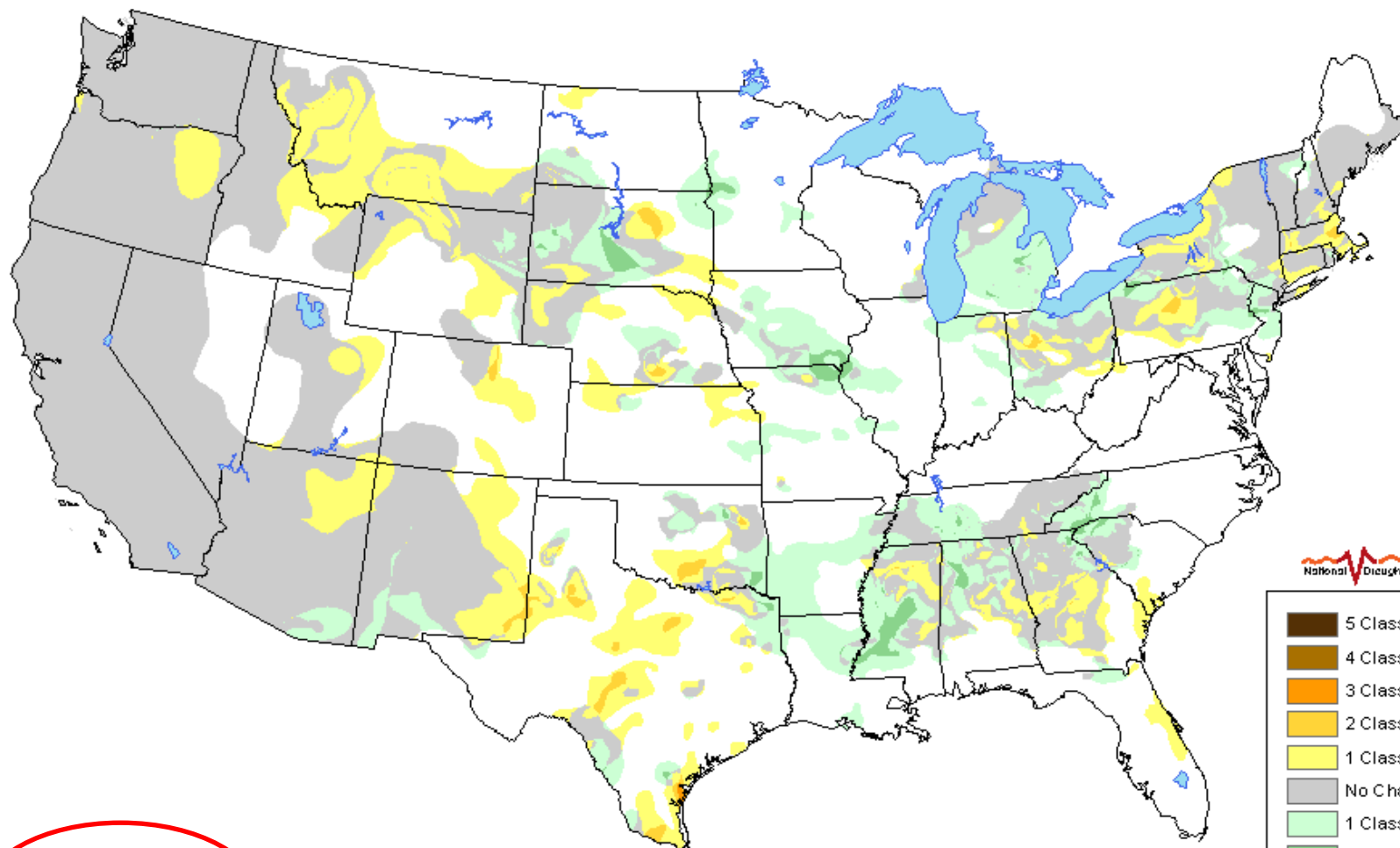
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






Author:

David Miskus
NOAA/NWS/NCEP/CPC



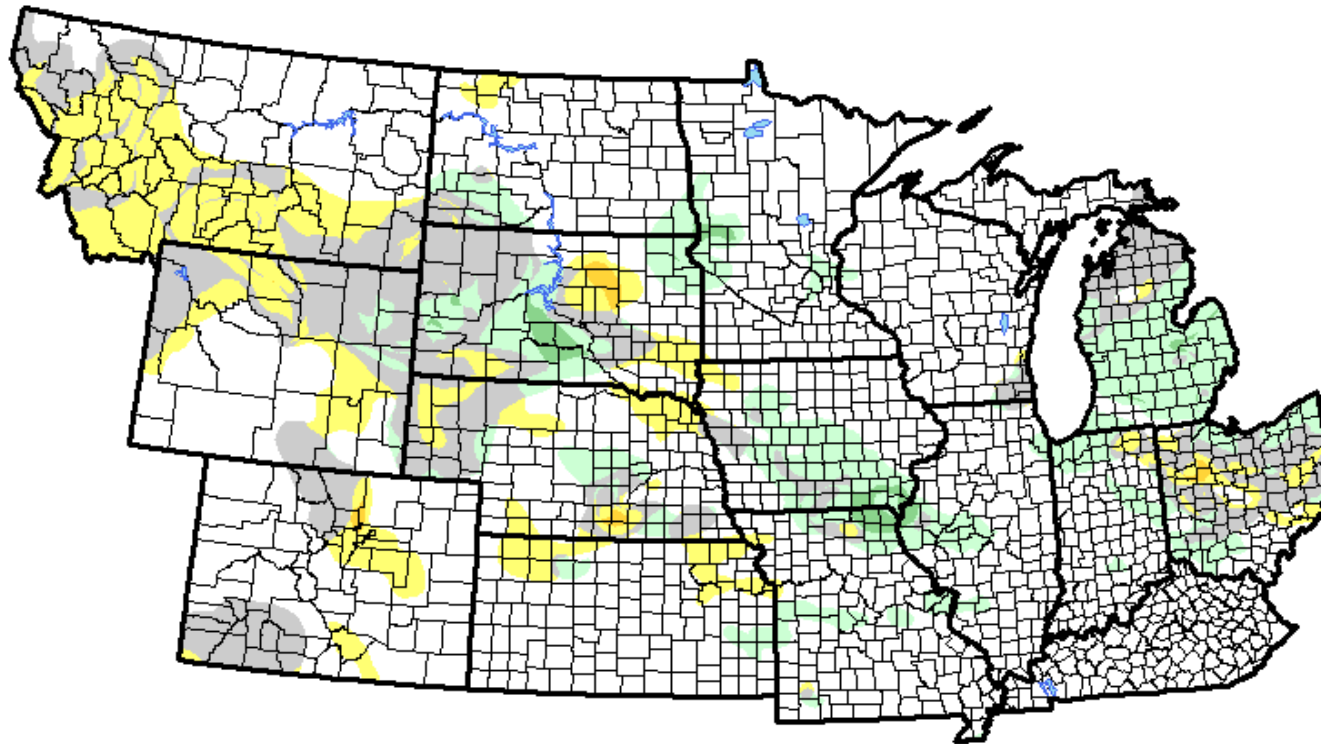
U.S. Drought Monitor Class Change 1 Month



-  5 Class Degradation
-  4 Class Degradation
-  3 Class Degradation
-  2 Class Degradation
-  1 Class Degradation
-  No Change
-  1 Class Improvement
-  2 Class Improvement
-  3 Class Improvement
-  4 Class Improvement
-  5 Class Improvement

August 16, 2016
compared to
July 19, 2016

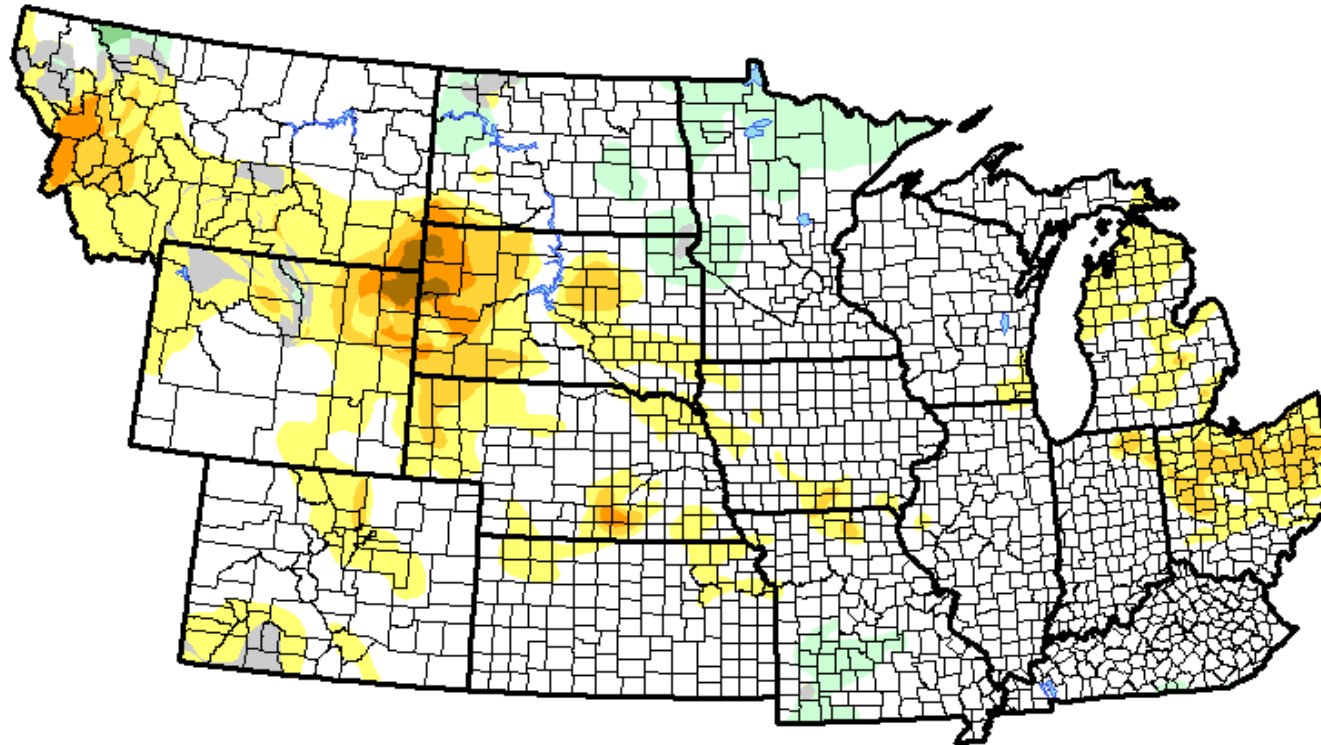
U.S. Drought Monitor Class Change - NWS Central Region 1 Month



- 5 Class Degradation
- 4 Class Degradation
- 3 Class Degradation
- 2 Class Degradation
- 1 Class Degradation
- No Change
- 1 Class Improvement
- 2 Class Improvement
- 3 Class Improvement
- 4 Class Improvement
- 5 Class Improvement

August 16, 2016
compared to
July 19, 2016

U.S. Drought Monitor Class Change - NWS Central Region 3 months

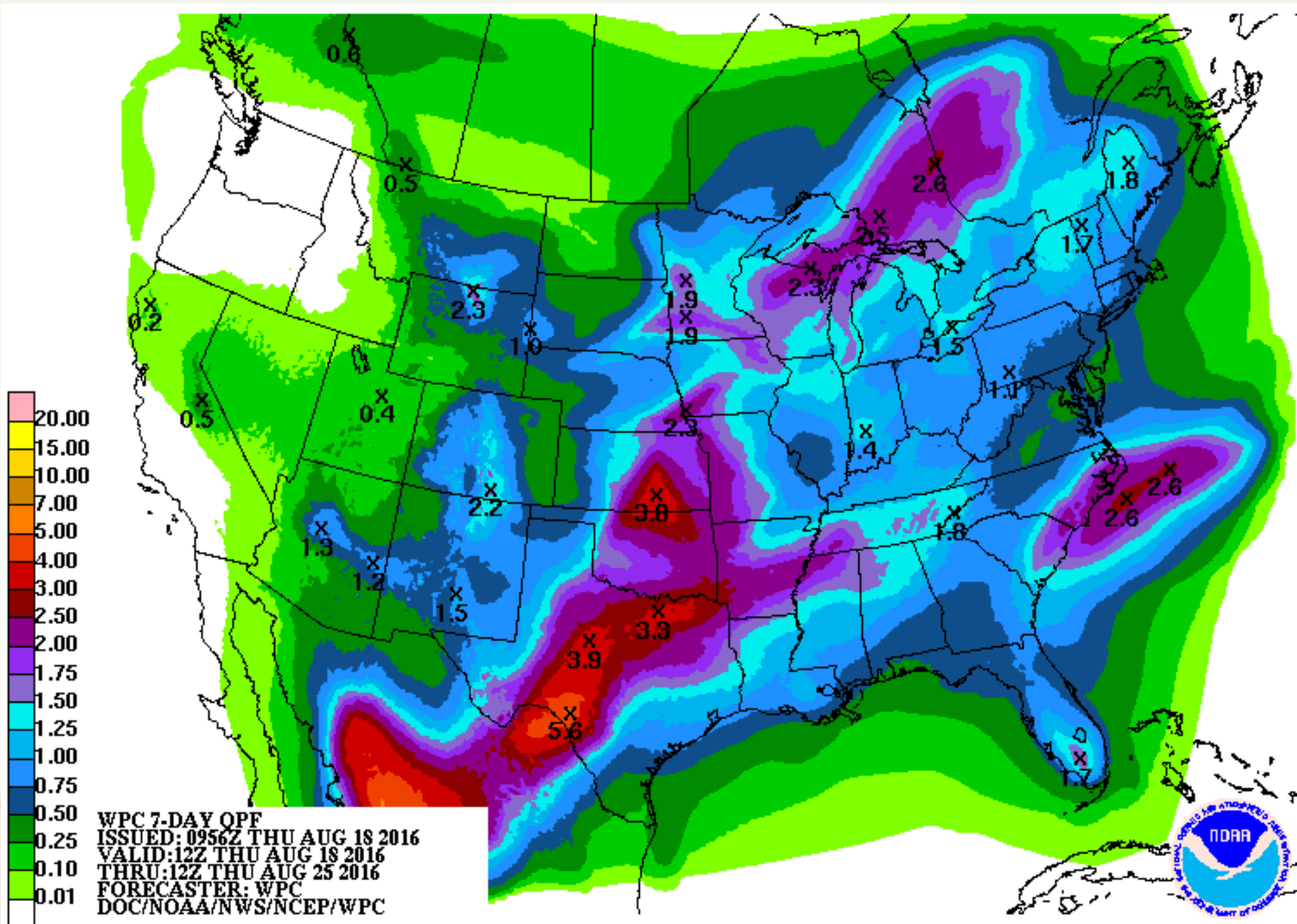


- 5 Class Degradation
- 4 Class Degradation
- 3 Class Degradation
- 2 Class Degradation
- 1 Class Degradation
- No Change
- 1 Class Improvement
- 2 Class Improvement
- 3 Class Improvement
- 4 Class Improvement
- 5 Class Improvement

August 16, 2016
compared to
May 24, 2016

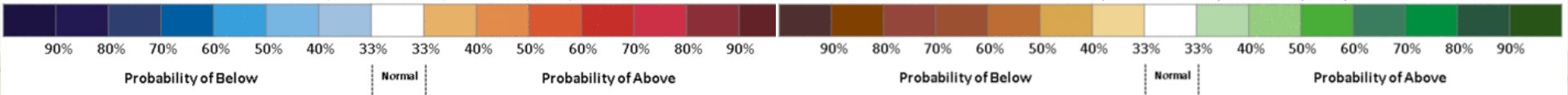
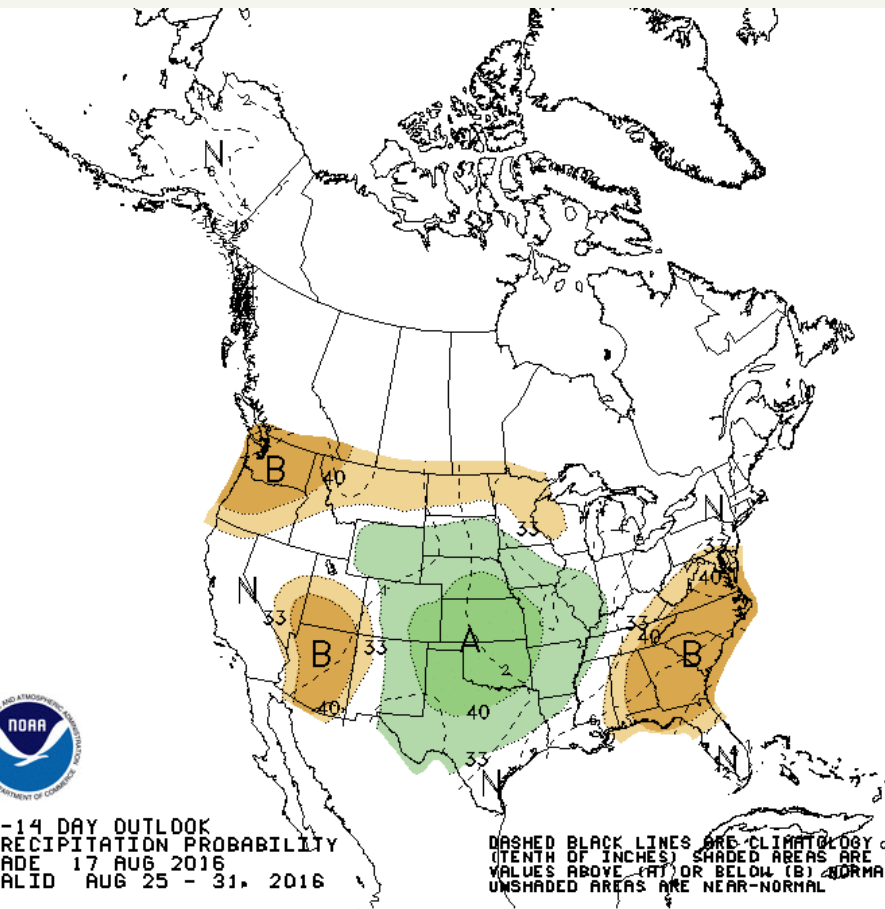
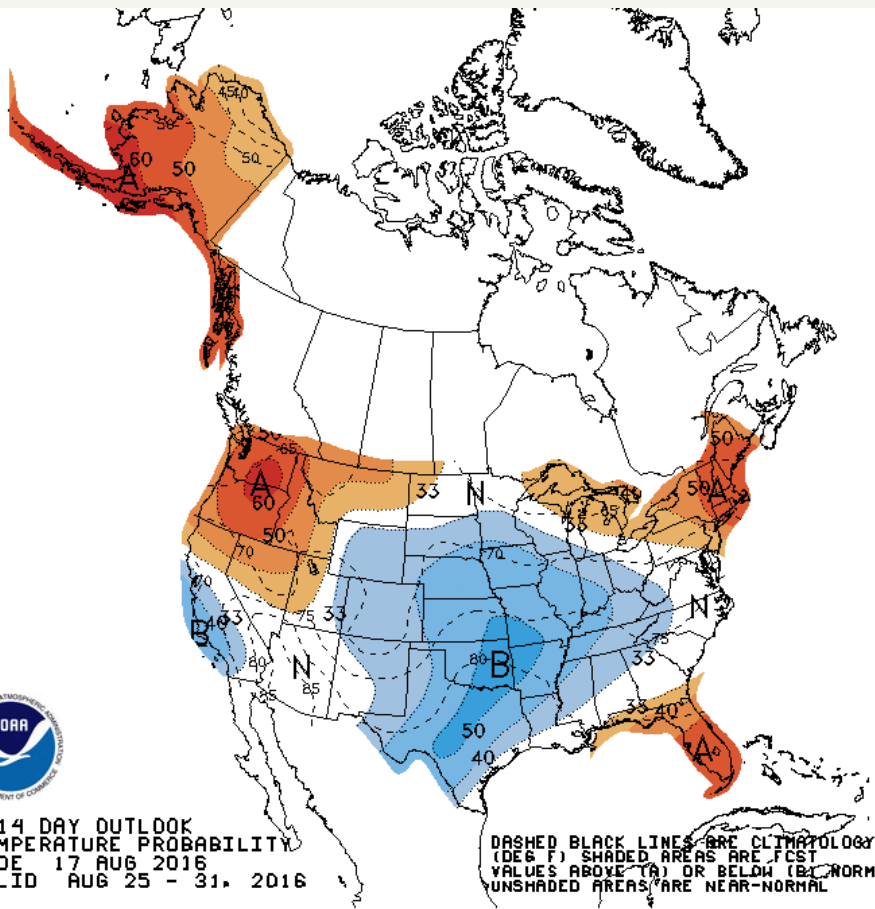
Climate Outlooks

- 7-day precipitation forecast
- 8-14 day outlook
- ENSO Outlook
- Monthly/Seasonal
- Seasonal Drought Outlook



http://www.wpc.ncep.noaa.gov/medr/medr_mean.shtml

8-14 day Outlook



<http://www.cpc.ncep.noaa.gov/products/forecasts/>

Mid-Jul 2016 Plume of Model ENSO Predictions

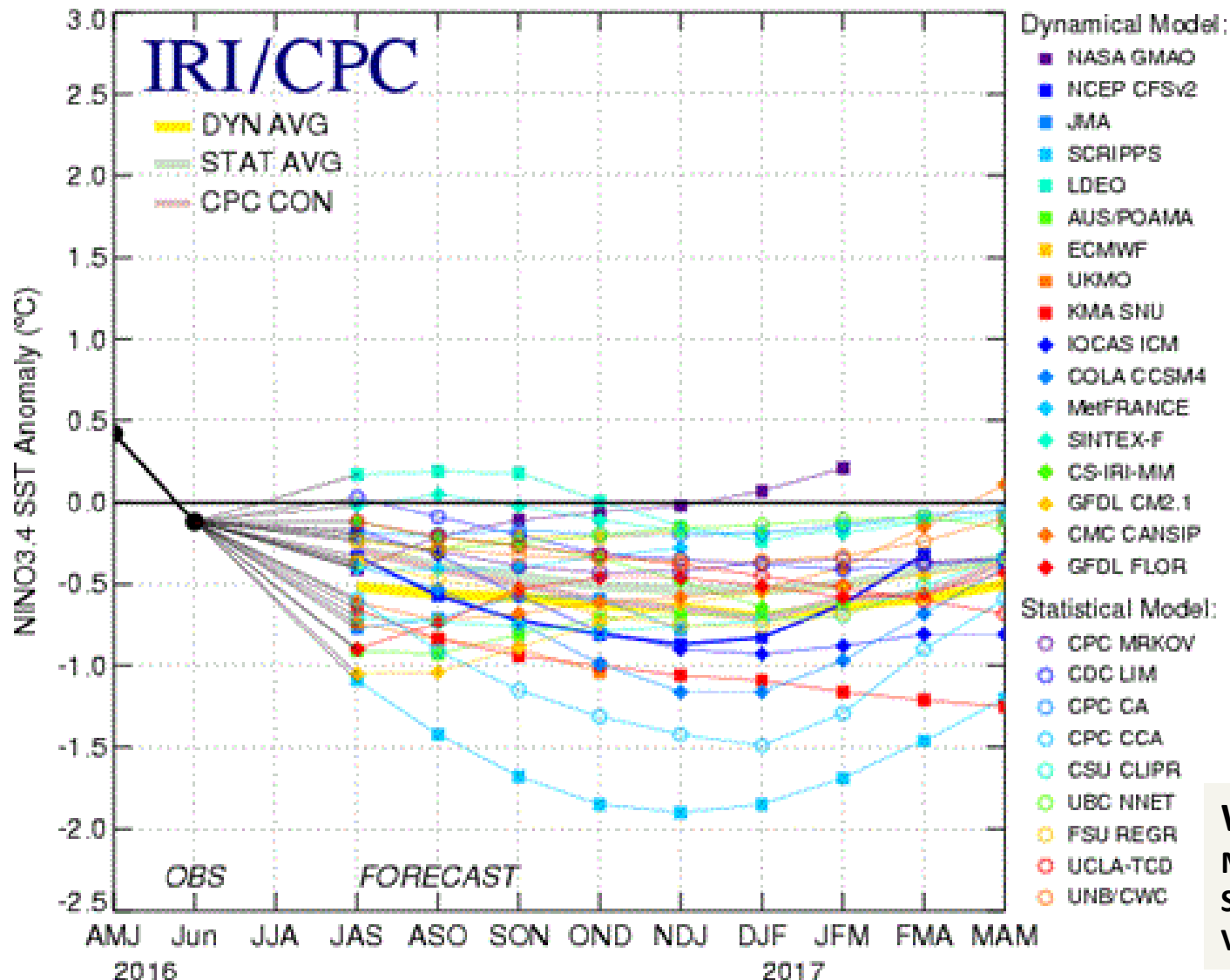
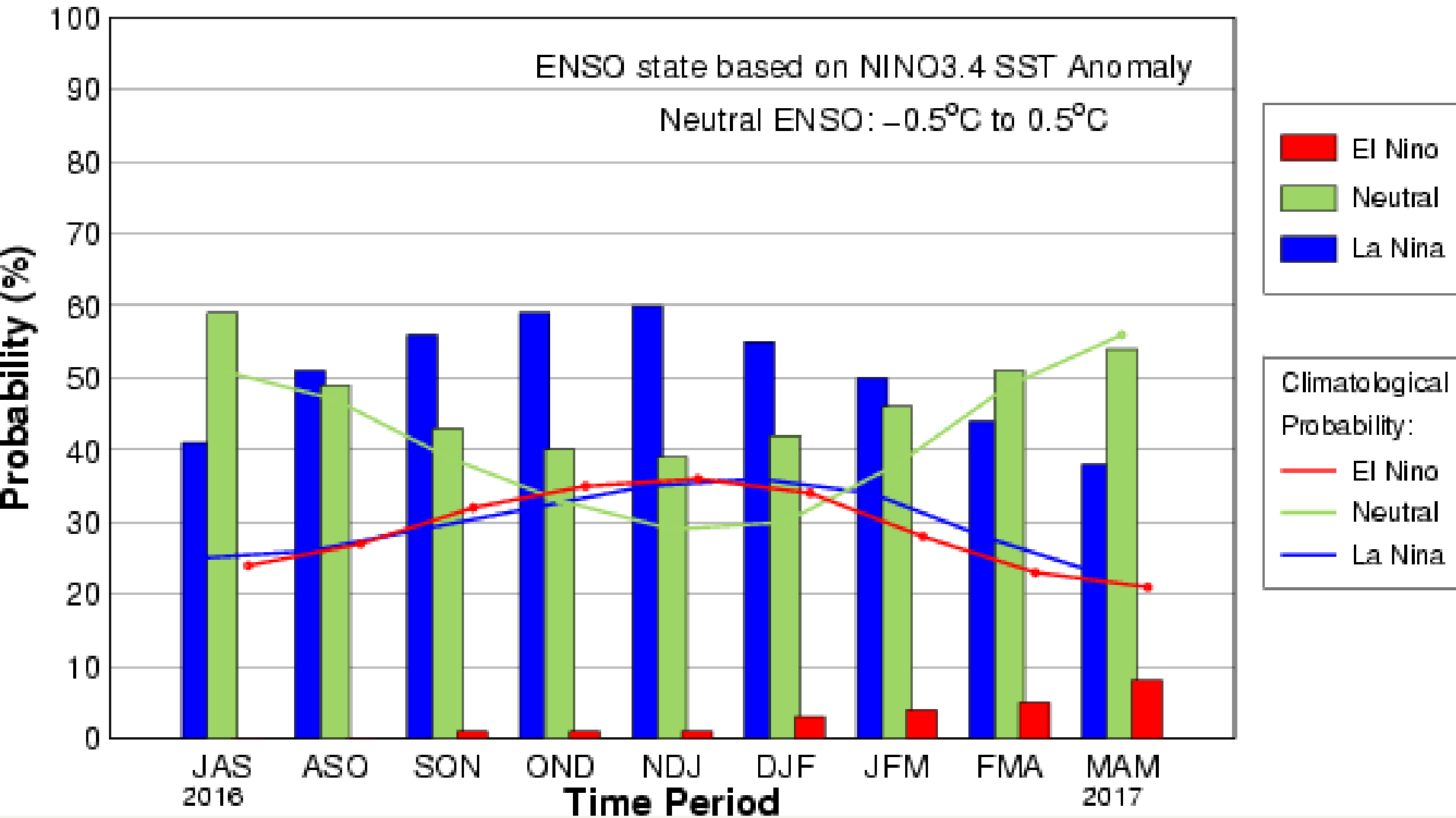


Figure 6. Forecasts of sea surface temperature (SST) anomalies for the Niño 3.4 region (5°N-5°S, 120°W-170°W). Figure updated 18 July 2016.

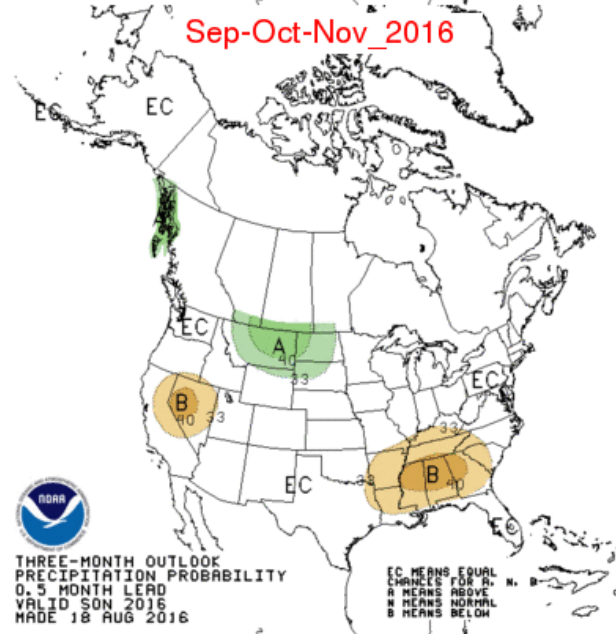
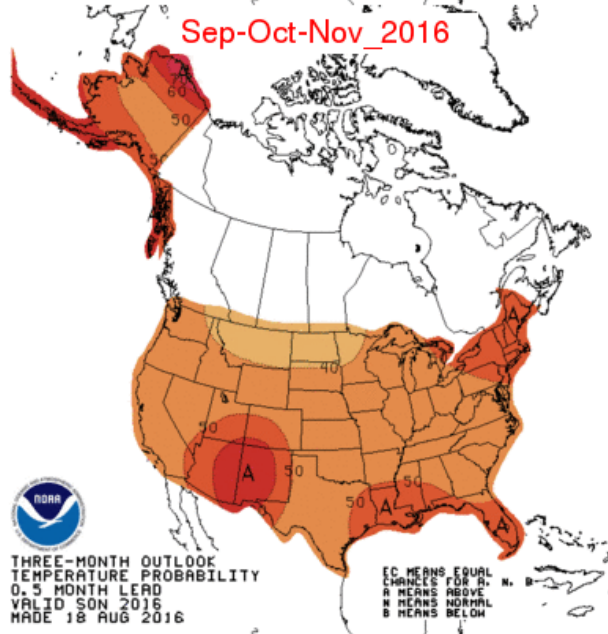
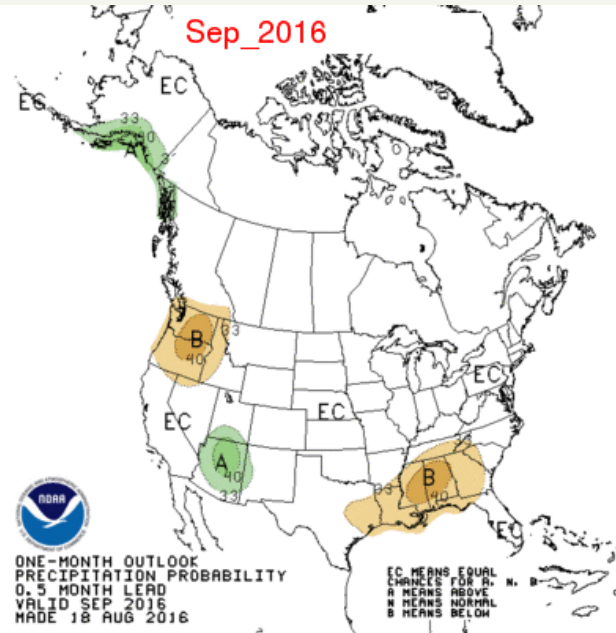
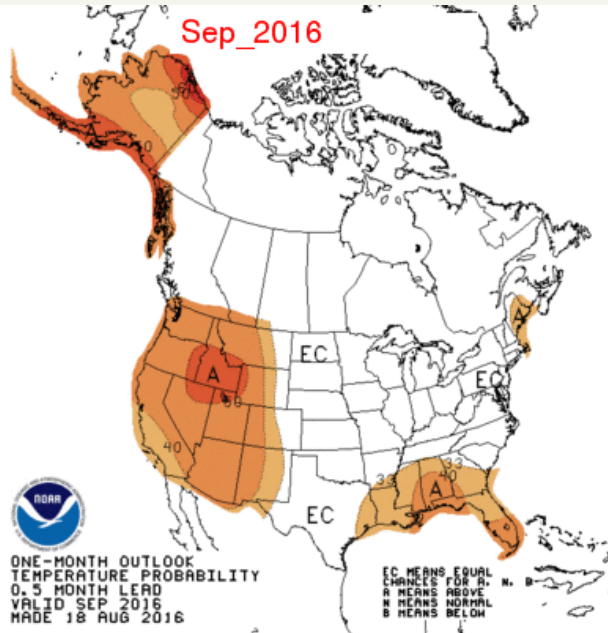


Early-Aug CPC/IRI Official Probabilistic ENSO Forecast



<http://iri.columbia.edu/our-expertise/climate/forecasts/enso/current/>

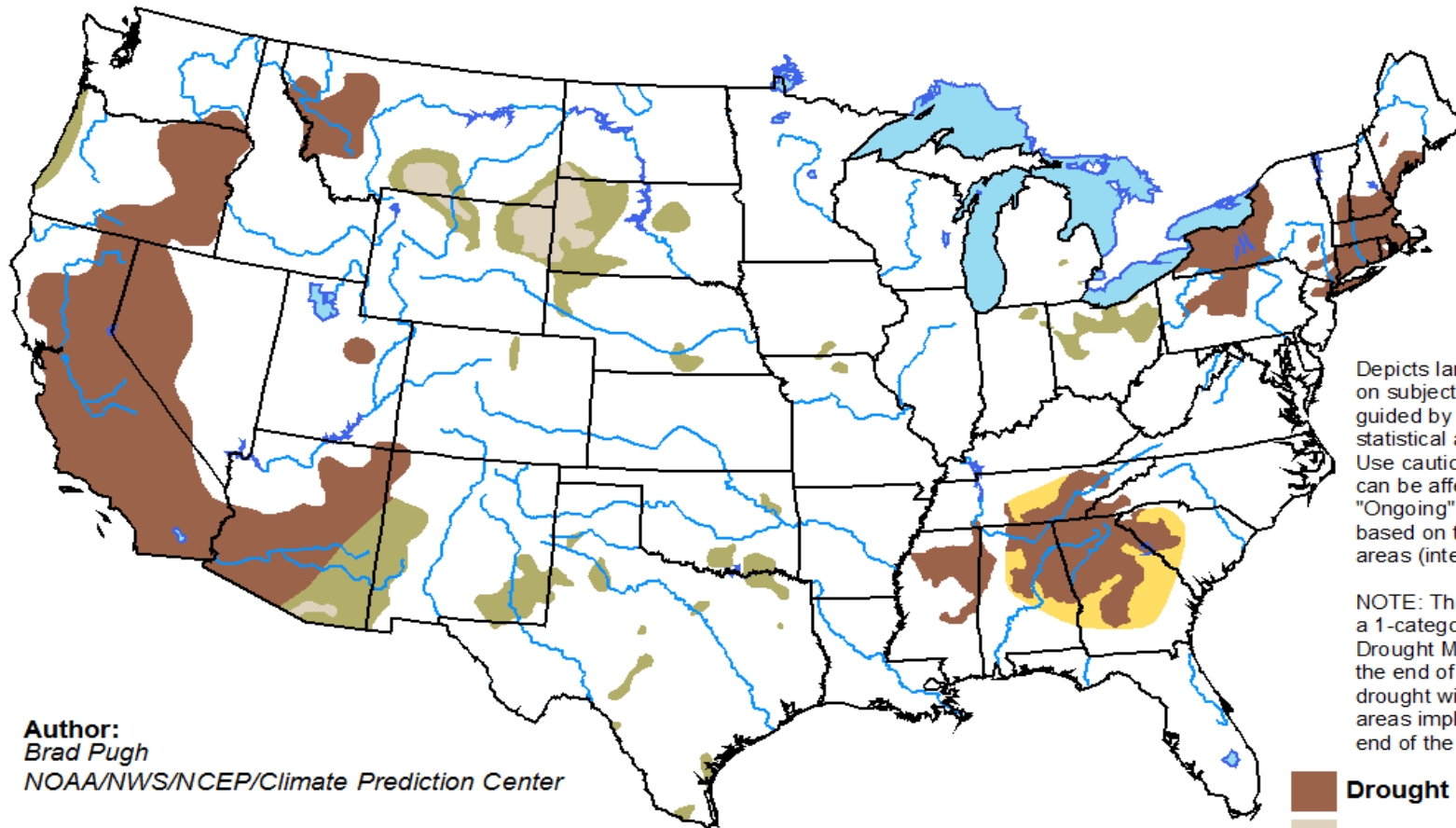
Monthly and Seasonal Outlook



Seasonal Drought Outlook

U.S. Seasonal Drought Outlook Drought Tendency During the Valid Period





Valid for August 18 - November 30, 2016
Released August 18, 2016

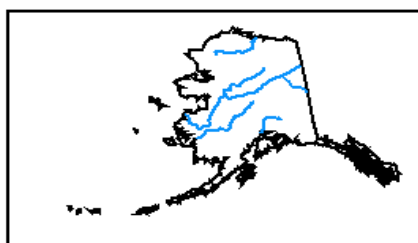


Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

Author:
Brad Pugh
NOAA/NWS/NCEP/Climate Prediction Center

-  Drought persists
-  Drought remains but improves
-  Drought removal likely
-  Drought development likely



<http://go.usa.gov/3eZ73>

Summary

- “Mixed” bag for precipitation across the region the past month (drier in the west, drier in the Great Lakes/northern Ohio/Indiana regions and wet in between)
- “Most” of the region has seen normalish to slightly above-normal temperatures the past month w/ the warmest departures coming in the eastern Corn/Bean belt and Great Lakes regions
- Recent story has been “high” minimum temps, high dew points and “corn sweating” ...and I can vouch for some grass sweating too)

Summary

- Drought (D1-D3) is not a major issue in the region at present (**< 10%**)
 - Black Hills region being one exception in western South Dakota, ne Wyoming and se Montana
 - Northern Ohio/ne Indiana is the other exception
- **“La Niña Watch”** is in play (source: IRI/CPC)
 - Have been ENSO neutral since May
 - Odds are slightly better than 50-50 to develop into a weak cold event in the fall/early winter time frame
- Most of the region looks to **remain warm** thru the fall. No hedging on how precipitation will play out w/ Equal Chances the call for most of the region (Upper Missouri basin exception)
- **No new drought development** is called for in the region through the end of November

Further Information - Partners

- Today's and Past Recorded Presentations and :
 - <http://mrcc.isws.illinois.edu/webinars.htm>
 - <http://www.hprcc.unl.edu>
- NOAA's National Climatic Data Center: www.ncdc.noaa.gov
 - Monthly climate reports (U.S. & Global): www.ncdc.noaa.gov/sotc/
- NOAA's Climate Prediction Center: www.cpc.ncep.noaa.gov
- Climate Portal: www.climate.gov
- U.S. Drought Portal: www.drought.gov
- National Drought Mitigation Center: <http://drought.unl.edu>
- State climatologists
 - <http://www.stateclimate.org>
- Regional climate centers
 - <http://mrcc.isws.illinois.edu>
 - <http://www.hprcc.unl.edu>

Thank You! Any questions?

• Questions:

Climate:

- Mark Svoboda: msvoboda2@unl.edu, 402-472-8238
- Dennis Todey: dennis.todey@sdstate.edu, 605-688-5141
- Doug Kluck: doug.kluck@noaa.gov, 816-994-3008
- Mike Timlin: mtimlin@illinois.edu, 217-333-8506
- Natalie Umphlett: numphlett2@unl.edu, 402-472-6764
- Barb Mayes Boustead: barbara.mayes@noaa.gov,
402-359-4381

Weather:

- crhroc@noaa.gov

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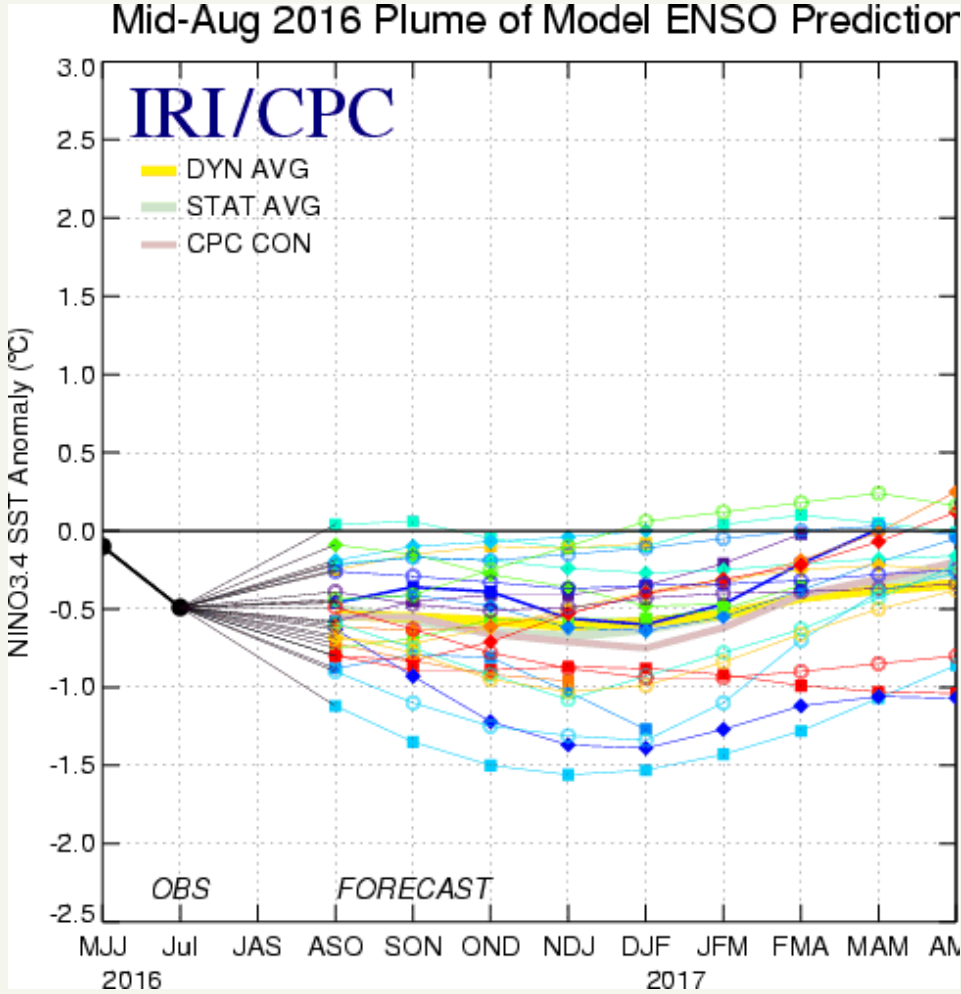
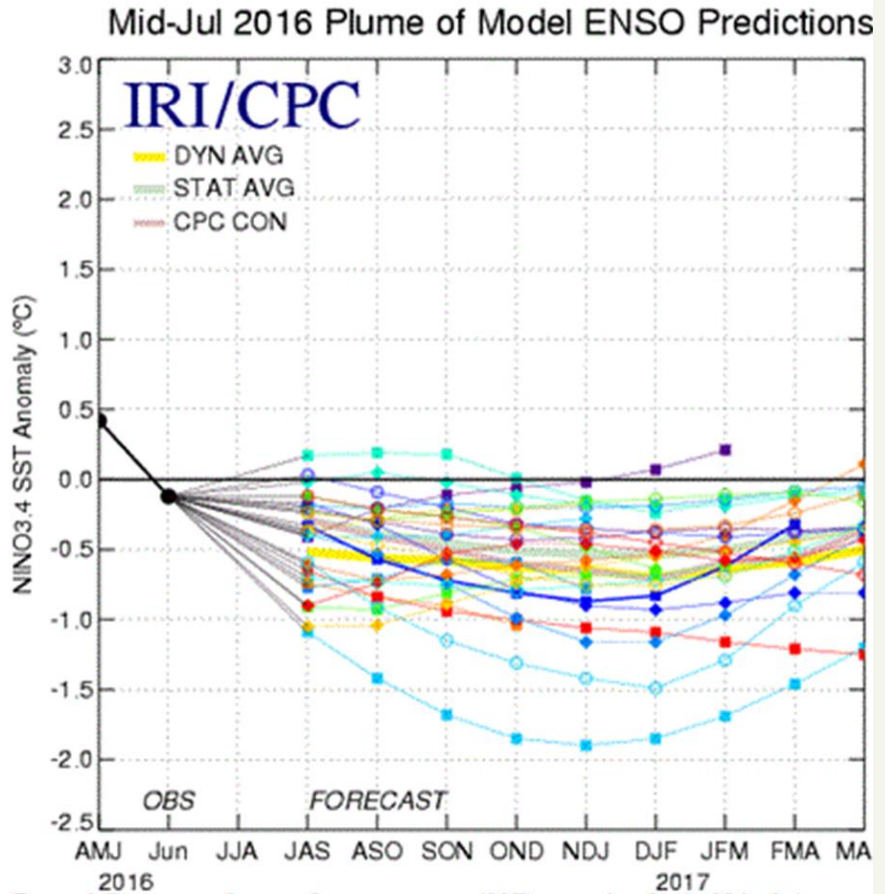
National Drought Mitigation Center

Drought Risk Management Research Center



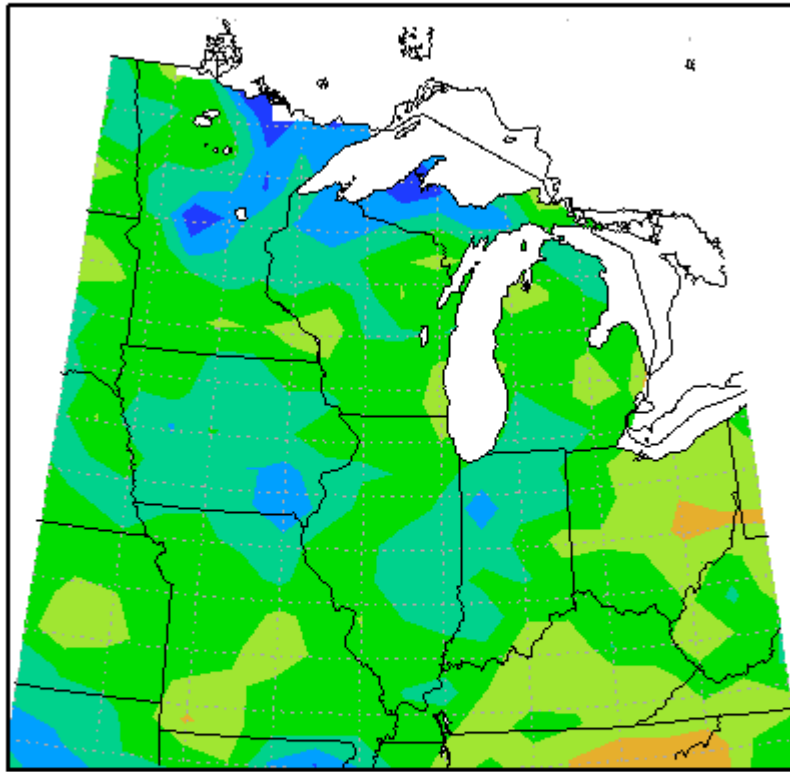
School of Natural Resources
University of Nebraska-Lincoln

ENSO Model Outlooks



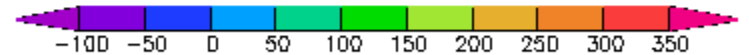
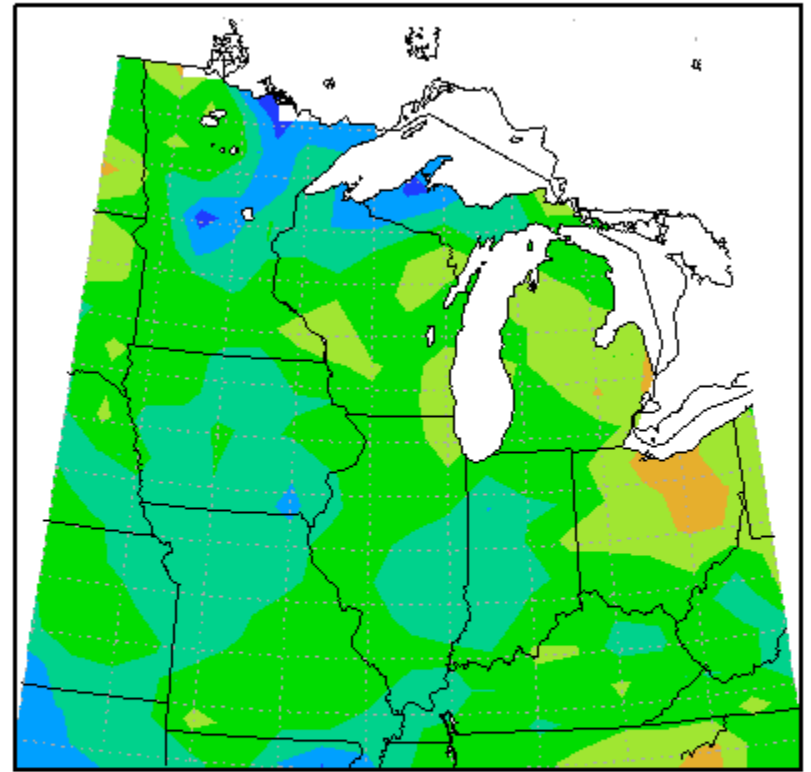
Growing Degree Days Departure from normal

MGDD Departure, 4/1/2016 to 8/17/2016



Midwestern Regional Climate Center
Illinois State Water Survey
University of Illinois at Urbana-Champaign

MGDD Departure, 5/1/2016 to 8/17/2016



Midwestern Regional Climate Center
Illinois State Water Survey
University of Illinois at Urbana-Champaign